

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/812,694	NISHIMURA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Curtis B. Odom	2634	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt filed on 11/1/2004.
2. ☒ The allowed claim(s) is/are 1-6, 8, and 9, which have been renumbered claims 1-8, respectively.
3. ☒ The drawings filed on 6/2/2001 and 11/1/2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____.</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____.</li> </ol> |
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### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Keith E. George on January 27, 2005.

The application has been amended as follows:

Claim 1 (currently amended). An adaptive equalizer circuit which adds given equalization characteristics to signals input through a transmission path and performs a control such that an equalization error obtained by performing an arithmetic operation based on an obtained output and a given reference value is minimized thus obtaining equalization characteristics,

an improvement being characterized in that the adaptive equalizer circuit changes the equalization characteristics wherein the arithmetic operation of the adaptive equalizer circuit is performed in synchronization with a signal having a phase different from a reference clock signal of the signal by a 1/2 clock cycle, the synchronization is realized by sampling data at the point of 1/2 clock cycle different from a zero-crossing point of the signal,

and the equalization characteristics are changed by computing the equalization error based on a first output value and said given reference value after a sign of an output of the adaptive equalizer circuit is changed from positive to negative or from negative to positive.

Claim 2 (currently amended). An adaptive equalizer circuit according to claim 1, wherein the equalization characteristics of the adaptive equalizer circuit are changed based on the first output value and a first reference value after the sign of the output of the adaptive equalizer circuit is changed from positive to negative, and the equalization characteristics are changed based on the first output and a second reference value after the sign of the output of the adaptive equalizer circuit is changed from negative to positive.

Claim 4 (currently amended). An adaptive equalizer circuit according to claim 1, wherein equalization characteristics of the adaptive equalizer circuit are changed based on the first output value and a first reference value after the sign of the an output of the adaptive equalizer circuit is changed from positive to negative or from negative to positive, and the equalization characteristics are changed based on a second reference value and the output value immediately before the sign of the output of the adaptive equalizer circuit is changed from positive to negative or from negative to positive.

Claim 8 (currently amended). An adaptive equalizer circuit which adds given equalization characteristics to signals input through a transmission path and performs a control such that an equalization error obtained by performing an arithmetic operation based on an

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obtained output and a given reference value is minimized thus obtaining equalization characteristics,

an improvement being characterized in that the adaptive equalizer circuit changes the equalization characteristics wherein the arithmetic operation of the adaptive equalizer circuit is performed in synchronization with a signal having a phase different from a reference clock signal of the signal by a  $1/2$  clock cycle,

and the equalization characteristics are changed by computing the equalization error based on a first output value and said given reference value after a sign of an output of the adaptive equalizer circuit is changed from positive to negative or from negative to positive,

wherein the reference value is changed corresponding to the change of threshold values at the time digitizing the output of the adaptive equalizer circuit.

#### **EXAMINER'S STATEMENTS OF REASONS FOR ALLOWANCE**

2. The following is an examiner's statement of reasons for allowance: Claims 1-6, 8, and 9, which have been renumbered claims 1-8 are allowable over prior art because related references do not disclose minimizing equalization error by changing equalization characteristics added to the input signal by performing an arithmetic operation in synchronization with a signal having phase different from a reference clock signal by a  $1/2$  clock cycle, the synchronization is realized by sampling data at the point of  $1/2$  clock cycle different from a zero crossing point of the input signal, wherein a reference value used in the arithmetic operation is changed corresponding to a change of threshold values at the time of digitizing the output of the adaptive equalizer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom  
January 27, 2005



**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**